



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/763,336

01/26/2004

Masataka Tamura

052218-0104

6946

22428 7590 03/17/2008

FOLEY AND LARDNER LLP
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

ELVE, MARIA ALEXANDRA

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

03/17/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/763,336	Applicant(s) TAMURA ET AL.	
	Examiner M. Alexandra Elve	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-7, 10-12 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-7, 10-12 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/965,122.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-7 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (6,060,686) in view of Mukasa et al. (USPN 6,667,456) or Szelagowski et al. (WO 96/38258).

Jones teaches irradiating a condensed laser beam generated by a laser source to a certain point of an underwater workpiece (Figure 2, item 18b and 12a); supplying gas to the certain point from a nozzle having a gas exit (Figure 2, Item 22a); the nozzle having an area surround the gas exit that extends to the surface of the workpiece for keeping the supplied gas between the nozzle and the workpiece (Column 3, Lines 25-40), a nozzle is formed as a disk having a gas exit at the center thereof (Figure 2, item 20c and Column 3, Lines 25-40); a welding wire supplied to a certain point (Column 4, Lines 50-65); where the welding wire is a wire tip disposed in the nozzle (figure 2, item 26d); where a bush prevents the reflected laser beam from entering the laser source (figure 2, item 20b); irradiating the workpiece at an angle to the workpiece (Figure 1, item 18b); adjusting a gap between the nozzle and the workpiece (Column 3, Lines 45-50); irradiating a condensed laser beam generated by a laser source to a

Art Unit: 1793

certain point of an underwater workpiece (Figure 2, item 18b and 12a); supplying gas to the certain point from a nozzle having a gas exit (Figure 2, Item 22a); the nozzle having an area surround the gas exit that extends to the surface of the workpiece for keeping the supplied gas between the nozzle and the workpiece (Column 3, Lines 25-40) and where the nozzle is formed as a disk having a flat surface area facing the workpiece (see figure 2, where the bottom surface of the nozzle (disk) is flat, albeit tilted and Figure 2, item 20c and Column 3, Lines 25-40).

Jones does not specifically disclose a circular groove in the nozzle.

Mukasa et al. discloses a coaxial nozzle, which blows and evacuates gas during laser welding. (See figures). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a coaxial groove nozzle arrangement as taught by Mukasa et al. in the Jones apparatus because the nozzle design ensures an environmental seal on the workpiece by equilibration of pressures.

Szelagowski et al. discloses a nozzle with multiple grooves. See figure 2.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a coaxial groove nozzle arrangement as taught by Szelagowski et al. in the Jones apparatus because the nozzle design ensures an environmental seal on the workpiece by equilibration of pressures.

Art Unit: 1793

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones in view of Mukasa et al. or Szelagowski, as stated above and further in view of the following:

The prior art references teach a circular groove, but not a rectangular, triangular or semicircular groove. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a groove shape which is best suited for the manufacturing application/process. The types of materials chosen are a choice in design and substitution of known equivalent structures may be made. In re Kuhle 188 USPQ (CCPA 1975), In re Ruff 118 USPQ 343 (CCPA 1958).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones and Mukasa et al. or Szelagowski et al., as stated above, and further in view of Cruickshank et al. (3,632,955) or Kunitsudu (USPN 4,867,560).

Jones does not teach the use of a diachronic mirror in combination with a sensor (detector).

Cruickshank et al. teach separating visible light by a dichroic mirror and inputting the separated visible light into an image sensor (Figure 10, items 66 and 67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the laser of Jones to utilize the mirror and sensor in order

Art Unit: 1793

to view the welding with complete operator safety (see Cruickshank et al. Column 5, Lines 30-60).

Kunitsugu discloses a dichroic mirror in combination with a sensor for alignment.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a dichroic mirror and sensor, as taught by Kunitsugu in the Jones apparatus because it ensures alignment of the workpiece with the laser nozzle.

Response to Arguments

Applicant's arguments filed 12/7/07 have been fully considered but they are not persuasive.

Applicant argues that neither Szelagowski nor Muskasa discloses a circular groove extending in a circumferential direction on the flat surface area facing the workpiece. The examiner respectfully disagrees because Muskasa et al. in figure 3 shows circular grooves which when placed on the workpiece would extend in a circumferential direction. Szelagowski et al. shows in figure 2 the same type of circular grooves which when placed on the workpiece would extend in a circumferential direction.

Art Unit: 1793

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Alexandra Elve whose telephone number is 571-272-1173. The examiner can normally be reached on 7:30-4:00 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1742. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

March 2, 2008

/M. Alexandra Elve/
Primary Examiner, Art Unit 1793